

**04 20 23**  
**BRICK RAINSCREEN SYSTEMS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Corium brick plates
2. Galvanized and coated metal trays
3. Lime mortar
4. Flashing, weather seals, cover plates, and formed metal trim
5. Miscellaneous anchors, fasteners, adhesives, insulation, vapor barrier, sealants, and related accessories

B. Related Sections:

1. Section 03300 - Cast-in-Place Concrete
2. Section 05120 - Structural Steel
3. Section 05500 - Metal Fabrications
4. Section 06100 - Rough Carpentry
5. Section 07210 - Building Insulation
6. Section 07600 - Flashing and Sheet Metal
7. Section 07841 - Fire Stop Systems
8. Section 07900 - Joint Sealers
9. Section 08925 - Glazed Aluminum Curtain Walls and Sloped Glazing

**1.2 SYSTEM DESCRIPTION**

- A. A complete pre-engineered brick rainscreen façade consisting of interlocking pre-coated galvanized steel tray sections profiled to accept Corium brick tiles that fasten to a vertical sub frame. Specially profiled bricks are secured by clipping into the steel profiles. The vertical and horizontal joints between the bricks are mortared or pointed with Parex Historic KL Mortar. The basis of design is the Corium Brick System offered in North America by Telling Architectural Systems.
- B. Design system to allow for all movements within structure, and to support loads transferred from the adjacent construction and to fit within the space allotted without projections into the finished space as shown on the Drawings.

## C. Design Criteria:

1. Strength: Design system to withstand loadings as required by applicable codes, but not less than following minimum loadings.
  - a. Wind: Uniform pressure of 25 psf inward and outward wind pressures.
  - b. Seismic: Conform with applicable codes. Allow for interstory drift during seismic event.
2. Condensation: System shall accommodate positive drainage for moisture entering or condensation occurring within panel system.
3. Flatness: System shall be flat with no noticeable warpage, buckling, deflections, or other surface irregularities.
4. The drawings indicate sizes, profiles, finishes, and dimensional requirements of the exterior wall system required and are based on specific types and models specified. With no less than 10 days prior to the bid, exterior wall system components by other manufacturers may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as solely judged by the Architect. The burden of proof of equality is on the proposer.

## 1.3 PERFORMANCE REQUIREMENTS

- A. General: Design, fabricate, and install components so that the completed exterior wall system will withstand live loads, the inward and outward pressures specified, and loads stipulated by the Building Code in effect for this Project.
  1. The system shall have a design load of positive and negative pressures up to 60 psf.
  2. Deflections within the system are to be limited to  $L/360$  or less when tested in accordance with positive and negative pressures and as required to prevent cracking or damage to tile facing.
  3. The exterior wall system shall be designed to meet all specified performance requirements. Where performance requirements result in more than one load or pressure, the load or pressure which produces the greatest stress shall govern.
- B. Movement: Design, fabricate and install system to withstand building, seismic and thermal movements including loading deflections, temperature change without buckling, distortion, joint failure, glass breakage, or undue stress on system components, anchors, or permanent deformation of any kind.
  1. Provide for thermal movement over an ambient temperature range of 120 deg. F. and a surface temperature range of 180 deg F.

#### 1.4 SUBMITTALS

- A. Shop Drawings: Complete shop drawings shall be submitted for approval prior to fabrication, including elevations, and sections of each condition. Such drawings shall also include metal thickness, finish, methods of installation, anchorage, and expansion joints and width tolerances necessary to accommodate thermal movement.
- B. Shop Drawings of Mock-Up: Submit shop drawings of exterior wall system mock-up showing details. Include detailed description of each test procedure to be performed.
- C. Calculations: Submit calculations for the design of the exterior wall system, including deflections, in place stresses, negative pull-off loads, and capacity of fasteners. Calculations shall be signed and sealed by a Professional Engineer registered in the Province of Ontario.
- D. Product Data: Manufacturer's latest published literature describing each product selection.
- E. Samples: Submit three sets of the following samples in the selected finishes and color for Architect approval.
  - 1. Each type and composition of brick tile and for each color and texture required, at specified full size.
  - 2. Three samples, one foot long, of coated galvanized metal trays.

#### 1.5 QUALITY ASSURANCE

- A. Performance Test Standards: Provide exterior wall system which has been tested and certified by manufacturer to provide specified resistance to air and water infiltration when installed as indicated and when tested in accordance with AAMA 501, "Methods of Test for Metal Curtain Walls."
- B. Field Test: Provide suitable small sample area for field testing by Owner/Consultant for resistance to air infiltration and water penetration of a small representative sampling of installed brick tile, cladding assemblies and adjacent perimeter construction per requirements of AAMA 501.901 Test Method B.
  - 1. Resistance to air infiltration using static air pressure difference: ASTM E 283- Field Measurement of Air Leakage through Installed Exterior Windows and Doors.
  - 2. Resistance to water penetration using static air pressure difference: ASTM E 331- Field Determination of Water Penetration and Installed Exterior Windows, Curtain walls and Doors by Uniform and Cyclic Static Air Pressure Difference.

- C. **Manufacturer's Qualifications:** Provide exterior wall system manufactured by a firm experienced in manufacturing systems that are similar to those indicated for this project and have a record of successful in-service performance.
- D. **Qualifications of Installers:**
1. The cladding installer shall be approved by the manufacturer of the cladding.
  2. The installer will have experience with 25,000 Sq. Ft. of rainscreen installation.
  3. For actual installation of cladding, use only competent and skilled mechanics completely familiar with the products and the manufacturer's currently recommended methods of installation.
- E. **Source Responsibility:**
1. The rainscreen system, including the brick tiles and trays will be supplied by the same company.
  2. The entire brick rainscreen system, with all its components, will have been used for at least 10 years and in more than 30 projects.
- F. **Field Measurements:** Prior to fabrication of exterior wall system, field measurements of structure and substrates to receive wall system may be required
- G. **Mock-Up:**
1. Provide a completely assembled, typical wall area installed with all related accessories, in composite configurations designed to fulfill the performance criteria, and representative of the design as shown on the Drawings.
  2. Extent of mock-up shall be the same as that which will be provided in the final work.
  3. Mock-up shall be installed simulating actual construction conditions, including actual structural supports and connections. Use means, methods and techniques proposed for final installation.
  4. Locate mock-up in location as directed by the Architect.
  5. Personnel assembling mock-up shall be the same personnel that will perform the actual final units of work at the project site.
  6. Mock-up may be subjected to testing criteria specified for final installation.

## 1.6 PRE-INSTALLATION COORDINATION

- A. **Pre-Installation Conference:** Prior to start of cladding work, and at General Contractor's direction, meet at site and review installation procedures and coordinate with other work.

1. Meeting shall include Contractor, Installer, Architect, major material manufacturers, and subcontractors whose work must be coordinated with cladding work.
- B. Installer shall examine parts of supporting structure and conditions under which cladding work is installed.
- C. Notify Contractor in writing of conditions detrimental to proper and timely completion of work.
- D. Do not proceed until unsatisfactory conditions have been corrected in manner acceptable to Installer.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver exterior wall system components packaged to comply with manufacturer's/fabricator's requirements and adequately protected from damage during shipment.
- B. Protect components from adverse job conditions prior to installation.
- C. Protect components from other trades after installation.
- D. Store Corium brick system components on platforms or pallets, covered with tarpaulins or other suitable weathertight ventilated covering. Avoid standing water. Store components so that water accumulations will drain freely.
- E. Mortar materials must be protected, stored and used as stated on the material packaging.
  1. Do not store exterior wall system components in contact with other materials that might cause staining, denting, surface damage, or other deleterious effect. Be mindful of bag expiration dates.

#### 1.8 SPECIAL WARRANTY

- A. Warrant the Corium materials of this Section for a period of 5 years from date of Substantial Completion against defects.
- B. Warrant the workmanship of this Section for a period of \_ years from date of Substantial Completion against defects in workmanship.

PART 2 – PRODUCTS

2.1 ACCEPTABLE FABRICATOR/INSTALLER

- A. Subject to compliance with requirements, fabricator/installers offering exterior wall systems that may be incorporated in the work include the following: *Fill up the Company Name & Address*

2.2 EXTERIOR WALL SYSTEMS

- A. Subject to compliance with requirements, manufacturers of the Corium Brick Rainscreen system that may be incorporated in the work include the following:

1. Corium Brick System by Wienerberger Ltd. Distributed in North America by: Telling Architectural Systems [www.tellingarchitectural.com](http://www.tellingarchitectural.com) or 866.271.0488  
125 High Rock Ave, Saratoga Springs, NY 12866.  
Agent for Corium and Telling Architectural Systems in Ontario and Quebec is Façade Systems Inc: (647)923 8967; [info@facadesystemsinc.com](mailto:info@facadesystemsinc.com); [www.facadesystemsinc.com](http://www.facadesystemsinc.com)

2.3 MATERIALS

- A. Brick clay tiles complying with the following requirements:

1. Finish: (insert desired finish, color, glaze)
2. Size: (insert desired brick size US Modular (57mmx193mm))
3. Brick should be 1.25" (31mm) thick and snap-lock to trays.
4. Color: (insert desired brick color from standard color palette)

- B. Steel Trays:

1. Supplied in accordance with manufacturer's recommendations to meet load requirements specified.
2. Cold formed steel 0.75 mm thickness and brick height.
3. Hot dipped galvanization with 0.02 mm of HPS 200 Plastisol top coating or equal on the side to which the bricks are clipped.
4. Trays are profiled to interlock creating watertight drainage.

- C. Accessories:

1. Corrosion resistant type capable of supporting cladding system and superimposed design loads; design to allow adjustments of system prior to being permanently fastened in place.

D. Sub-structure system:

1. Subsystem to be designed, detailed and stamped by Engineer of the Province of Ontario.
2. Fasten to vertical sub girts and thermally isolated clips supplied by system manufacturer. Maximum spacing of 32" each way horizontally and 36" vertically.
3. Trays are fastened at each vertical sub-girt profile using BZP screws, SS used for below grade conditions.
4. Under no circumstances shall it be possible to remove individual brick unless they are first destroyed, or mortar is removed and brick mechanically removed.

## 2.4 PRECONSTRUCTION TESTING OF CORIUM BRICK TILES

- A. AAMA 501.1 Standard Test Method for water Penetration of Windows, Curtain Walls and Door using dynamic Pressure
- B. AAMA 501.5 Standard Test Method for Thermal Cycling of Exterior Walls
- C. ASTM E283-04 Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference
- D. ASTM E331-00(2009) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Wall by Uniform Static Air Pressure Difference
- E. ASTM E330-00(2010) Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls under Uniform Static Air Pressure Difference
- F. Freezing and Thawing: Test according to BCRL BM1:1933 Ceram, 100 cycles requiring minimum of 10 days (minimum 5 specimens). No specimen shall crack, crumble or fracture. Specimens shall conform to approved color range samples before and after testing.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Supply metal anchors to be built in to other trades for placement. Provide sufficient quantity and direct placement.
- B. Ensure items built in by other trades for this work are properly located and sized.
- C. Establish lines, levels, and shims as required. Protect from disturbance.
- D. Do not install broken, chipped, or cracked units.

### 3.2 INSTALLATION

- A. Installation can be carried out in adverse weather conditions with the exception of the mortar which must be completed with 40 degrees F and rising conditions and according to manufacturer's published instructions.
- B. Mortar and tool joints in accordance with manufacturer's instructions.
- C. Protect Adjacent Finishes
- D. If Required, clean mortar residue from face of brick using Prosoco 600 Detergent or Vana Trol in accordance with Manufacturer's application instructions and dilution rate. Always test clean and consult with Manufacturer prior to washdown.

END OF SECTION